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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Muneki Ando

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7590

09/23/2004

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EXAMINER

ABDULSELAM, ABBAS I

ART UNIT

PAPER NUMBER

2674

DATE MAILED: 09/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/484,432	ANDO ET AL.	
	Examiner	Art Unit	
	Abbas I Abdulsalam	2674	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 June 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 61-75 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 61-75 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 06/14/04 have been fully considered but they are not persuasive.

Applicant argues that the cited references as amended do not teach "suppressing a change in luminance of the display devices supplied with the modulation signal from the pulse width modulator wherein the change that is suppressed is one that results from deformation of the waveform of the modulation signal caused by a level change of the modulation signal supplied to the adjacent column wiring during a high-level period of the modulation signal from the pulse width modulator. However, as shown in the art rejection below, Yamaguchi on the other hand teaches amplitudes of waveforms, which change depending upon luminance of a color image signal, and discloses a modulating-signal driver (318) applying drive signals to each of the wiring lines in the column direction. See col. 11, lines 31-36, col. 21, lines 18-23 and Fig. 13. Furthermore, Yamaguchi teaches as shown in Fig. 13 Multipliers 322a.about.322c superimposing signals of prescribed waveforms generated by oscillators 323a.about.323c upon the sampled color signals such that oscillators 323a.about.323c generate signals having prescribed waveforms. It would have been obvious that the superimposing satisfies the desired deformation of waveform.

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Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 61-75 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gyouten et al. (USPN 6195077) in view of Fukuda et al. (USPN 5867593) and Yamaguchi et al. (USPN 5654607).

Regarding claims 61, 66 and 71, Gyouten et al. (hereinafter called Gyouten) teaches a liquid crystal panel (101) with segment drive circuit (102), and side drive circuit (103) which is used for selecting sequentially to drive scanning lines. Gyouten teaches displaying images in a simple matrix type which displays an image with a pixel located at each intersections of the electrodes (X1, Y1), (X2, Y2), (X3, Y3).....(Xm, Yn). See column 11, lines 47-58, Fig 1 and Fig 39. Gyouten teaches an output control means for adjusting an amount of correction for the output voltage of the segment side circuit according to the distance between an arrangement positions of the segment drive circuit and a position of scanning line selected by the side drive circuit in the liquid crystal panel. See column 1, lines 11-14, column 4, lines 42-47, and Fig 39. Moreover, Gyouten teaches correction clock generator circuit (70) in conjunction with the correction base clock for indicating the position where a correction period is to be provided, and the length of correction period is adjusted by the correction clock generator circuit. In addition,

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Gyouten teaches counter (72) changes in the outputs (B1, B2, B3) to high level; and further teaches the display data stored in the line latch (123) of the drive circuit (102) that would be given to the liquid crystal drive output circuit (126). See column 1, lines 55-63 and Fig 41.

Gyouten also teaches maintaining uniformity of luminance as well as the voltage waveforms with the correction voltage changes. See column 17, lines 30-33, lines 49-65 and Fig 20.

However, Gyouten does not teach a correction circuit such that the correction pulse is adjusted according to the difference between luminance of the signals for pixels that are adjacent to each other in the row direction. Fukuda et al. (hereinafter called Fukuda) on the other hand teaches gradient vector direction unit (16) and luminance level correction processing unit (14) including horizontal difference detector (9) calculating the difference value between the luminance levels of an arbitrary pixel and a pixel adjacent in the horizontal direction. See col. 6, lines 34-40 and Fig 1.

Therefore, it would have been obvious to one having skill in the art at the time the invention was made to modify Gyouten's liquid crystal display panel to include Fukuda's luminance correction technique including horizontal difference detector. One would have been motivated in view of the suggestion in Fukuda that the luminance level correction process including the horizontal difference level is functionally equivalent to the desired adjustment based on the difference between luminance levels of adjacent pixels. The use of luminance level correction processing unit helps function a display system with image forming technique as taught by Fukuda.

Gyouten in view of Fukuda has been discussed above. However, Gyouten does not teach correcting the modulation in such a way to "suppress an effect or luminance of the display

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devices supplied with the modulation signal from the pulse width modulator due to waveform modulation of the modulation signal supplied from the pulse modulation by a level change of the modulation signal supplied to the adjacent column wiring". Yamaguchi on the other hand teaches amplitudes of waveforms, which change depending upon luminance of a color image signal, and discloses a modulating-signal driver (318) applying drive signals to each of the wiring lines in the column direction. See col. 11, lines 31-36, col. 21, lines 18-23 and Fig. 13.

Furthermore, Yamaguchi teaches as shown in Fig. 13 Multipliers 322a.about.322c superimposing signals of prescribed waveforms generated by oscillators 323a.about.323c upon the sampled color signals such that oscillators 323a.about.323c generate signals having prescribed waveforms. It would have been obvious that the superimposing satisfies the desired deformation of waveform.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Gyouten's display system to adapt Yamaguchi's modulating-signal driver (318) along with luminance-waveform relationship. One would have been motivated in view of the suggestion in Yamaguchi that luminance vs. waveform relationship along with a modulating-signal driver (318) equivalently provide desired effect of luminance with respect waveform modulation. The use of modulating-signal driver helps function a color display device as taught by Yamaguchi et al.

Regarding claims 63, 68-70 and 73-75, Gyouten teaches the pulse width modulator (203), and correction clock with modulator (204), which is, supplied with reference correction clock

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signals. See Fig 29. Gyouten also teaches changing of the length of correction period. See column 16, lines 5-11 and Fig 14.

Regarding claims 62, 67 and 72, Gyouten teaches the liquid crystal panel (101) with common electrodes, segment electrodes and liquid crystal layer interposed between electrodes. Column 2, lines 9-12. In addition, it is well known in the art and would be obvious to utilize a display panel composed of electron emission devices with a phosphor layer. Gyouten also teaches improving display in liquid crystal device apparatus. See column 1, lines 7-10

Regarding claims 64-65, Gyouten teaches amount of correction with respect to uniformly luminance waveforms. See column 17, lines 21-23 and Fig 18.

Conclusion

3. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

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4. Any inquiry concerning this communication or earlier communication from the examiner should be directed to **Abbas Abdulsalam** whose telephone number is **(703) 305-8591**. The examiner can normally be reached on Monday through Friday (9:00-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Richard Hjerpe**, can be reached at **(703) 305-4709**.

Any response to this action should be mailed to:

Commissioner of patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314

Hand delivered responses should be brought to Crystal Park II, Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

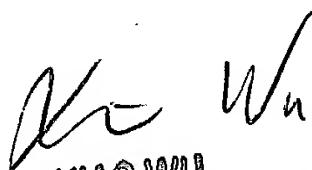
Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology center 2600 customer Service office whose telephone number is (703) 306-0377.

Abbas Abdulsalam

Examiner

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September 16, 2004


XIAO WU
PRIMARY EXAMINER